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Analysis of Neutron Diffraction Patterns for the Identification and Quantification of Crystalline Phases

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Crystalline phases are determined by analyzing their neutron diffraction patterns. Typically, this is achieved by detecting the peak positions and intensities of a diffraction pattern, followed by measuring the similarity between these extracted information and records of known phases stored in a reference database.

The aim of this study was to use deep learning approaches to automatically identify phases without depending on a reference database. A comparative benchmarking of these methods was conducted, demonstrating their ability to efficiently and accurately classify crystalline phases.

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